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Indian Standard

GRADING FOR SUNFLOWER SEEDS FOR OIL MILLING

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GRADING FOR SUNFLOWER SEEDS FOR OIL MILLING

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(*Continued on page* 7)

Indian Standard

GRADING FOR SUNFLOWER SEEDS FOR OIL MILLING

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 25 September 1975, after the draft finalized by the Oils and Oilseeds Sectional Committee had been approved by the Chemical Division Council and the Agricultural and Food Products Division Council.

0.2 The cultivation of sunflower has recently been stepped up due to the suitability of the oil obtained from it as a good edible oil and the high oil content in seeds. Sunflower is being grown mainly in Tamil Nadu, Andhra Pradesh, Karnataka, Gujarat and Maharashtra and to some extent in Madhya Pradesh, Uttar Pradesh and Punjab. The oil derived from sunflower seeds is mostly used for edible purpose.

0.3 The oil obtained from sunflower seed is covered under IS : 4277-1975*.

0.4 This standard has been prepared based on data made available from Oil Technological Research Institute, Anantapur; and Indian Council of Agricultural Research, New Delhi. The assistance so derived is thankfully acknowledged.

0.5 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960†. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard prescribes methods of grading and requirements for sunflower seeds for oil milling, along with methods of sampling and test.

NOTE — Seeds for this standard refer to sunflower fruits which are botanically called ' *Sypsela* '. The actual seeds are the kernel inside which contains oil.

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*Specification for sunflower oil (*first revision*).

†Rules for rounding off numerical values (*revised*).

2. TERMINOLOGY

2.1 For the purpose of this standard, the definitions given under 2 of IS : 3579-1966* shall apply.

3. GRADES

3.1 The material shall be of three grades, namely, Grade 1, Grade 2 and Grade 3.

4. REQUIREMENTS

4.1 The material shall be obtained from the plant *Helianthus annuus* Linn. fam. Compositæ.

4.2 The material shall be clean. The seeds shall not emit foul odour, nor found deformed due to moist conditions.

4.3 The material shall be free from non-edible seeds, such as *MAHUA*, castor, *NEEM* and argemone.

4.4 The material shall also comply with the requirements given in Table 1.

TABLE 1 REQUIREMENTS FOR SUNFLOWER SEEDS FOR OIL MILLING

Sl No.	Characteristic	Requirement for			Method of Test, Ref to	
		Grade 1	Grade 2	Grade 3	Appendix	Cl No. in IS : 3579-1966*
(1)	(2)	(3)	(4)	(5)	(6)	(7)
i)	Split or cracked seeds, percent by mass, *Max*	3	5	6	—	4
ii)	Impurities (dockage), percent by mass, *Max*	2	3	4	—	4
iii)	Total of (i) and (ii), *Max*	4	6	8	—	—
iv)	Hull content, percent by mass, *Max*	22	30	40	A	—
v)	Moisture content, percent by mass, *Max*	10	12	12	—	5.1
vi)	Oil content (on mositure-free basis), percent by mass, *Max*	42	38	30	—	5.2
vii)	Acid value of extracted oil, *Max*	2	3	3	—	5.3

*Methods of test for oilseeds.

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*Methods of test for oilseeds.

5. PACKING

5.1 The material shall be supplied packed in clean, dry, sound, single, new or unmended hessian bags in merchantable condition, as agreed to between the purchaser and the supplier.

6. MARKING

6.1 The bags shall be marked with the following particulars:

a) Name and grade of the material,
b) Net mass,
c) Year of the crop, and
d) The source of supply.

7. SAMPLING

7.1 Representative samples of the material shall be drawn as prescribed in IS : 4115-1967*.

8. TESTS

8.1 Tests shall be carried out as prescribed in IS : 3579-1966† and Appendix A. Reference to relevant clauses of that standard and Appendix A are given in col 7 and 6 of Table 1 respectively.

8.2 Quality of Reagents — Unless specified otherwise, pure chemicals and distilled water (*see* IS : 1070-1960‡) shall be used in the tests.

NOTE — ' Pure chemicals ' shall mean chemicals that do not contain impurities which affect the results of analysis.

APPENDIX A

[*Table* 1, *Item* (iv)]

DETERMINATION OF HULL CONTENT

A-1. OUTLINE OF THE METHOD

A-1.1 A known number of well cleaned and dry sunflower seeds are weighed and hull separated by applying light pressure by putting individual seeds between the thumb and the fore-finger. The hull content is determined.

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*Methods for sampling oilseeds.
†Methods of test for oilseeds.
‡Specification for water, distilled quality (*revised*).

A-2. PROCEDURE

A-2.1 Take about 100 sunflower seeds from a well cleaned and air-dried (at the prescribed moisture content) lot of sunflower seeds, free from broken seeds, splits or dockage. Divide the seeds into 4 lots of 25 seeds each. Weigh each lot accurately to the first place of decimal.

A-2.2 Take each seed individually between the thumb and the fore-finger and hold by its edges with acute angled end facing upwards. Apply light pressure by the thumb and the fore-finger till the hull splits at the acute angled end of the seed. Separate the hulls by nails or by a forceps and remove the inside kernel. Weigh the kernels of each lot accurately up to first place of decimal and calculate the hull content which is average of the four readings.

A-3. CALCULATION

A-3.1 Calculate the hull content as follows:

$$\text{Hull content, percent by mass} = \frac{M_1 - M_2}{M_1} \times 100$$

where

M_1 = mass in g of sunflower seeds taken for the test, and

M_2 = mass in g of the kernels.

(*Continued from page* 2)

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INDIAN STANDARDS ON OILS AND FATS, AND RELATED MATERIALS

IS:	
75-1973	Linseed oil, raw and refined (*second revision*)
435-1973	Castor oil (*second revision*)
542-1968	Coconut oil (*second revision*)
543-1968	Cottonseed oil (*second revision*)
544-1968	Groundnut oil (*second revision*)
545-1968	*MAHUA* oil (*second revision*)
546-1975	Mustard oil (*second revision*)
547-1968	Sesame oil (*second revision*)
548 (Part I)-1964	Methods of sampling and test for oils and fats: Part I Methods of sampling, physical and chemical tests (*revised*)
548 (Part II)-1974	Methods of sampling and test for oils and fats: Part II Purity test (*second revision*)
595-1956	Blown rape (or mustard) oil for use in lubricants
877-1971	Methods of sampling and test for activated carbon used for decolorizing vegetable oils and sugar solution
887-1968	Animal tallow (*first revision*)
1035-1972	Methods of sampling and test for bleaching earths (*second revision*)
1675-1971	Stearic acid, technical (*first revision*)
1676-1960	Oleic acid, technical
1780-1961	Vegetable tallow
1796-1960	Crude glycerine and refined glycerine
1965-1971	Bleaching earth of Indian origin used for decolorizing vegetable oils (*first revision*)
3448-1968	Rice bran oil (*first revision*)
3470-1966	Hexane, food grade
3490-1965	Nigerseed oil
3491-1965	Safflower oil
3492-1965	*KARANJA* oil
3579-1966	Methods of test for oilseeds
4054-1966	Neatsfoot oil
4055-1966	Maize (corn) oil
4056-1966	Fish oil for leather industry
4088-1966	*KUSUM* oil
4115-1967	Methods for sampling of oilseeds
4276-1967	Solvent-extracted soybean oil, refined
4277-1975	Sunflower oil (*first revision*)
4427-1967	Grading for groundnut kernels for oil milling and for table use
4428-1967	Grading for mustard seeds for oil milling
4429-1967	Grading for sesame seeds for oil milling
4617-1968	Grading for linseed for oil milling
4618-1968	Grading for castor seeds for oil milling
4619-1968	Grading for *MAHUA* kernels for oil milling
4620-1968	Grading for cotton seeds for oil milling
4765-1975	*NEEM* kernel and depulped *NEEM* seed oil (*first revision*)
5292-1969	Grading for safflower seeds for oil milling
5293-1969	Grading for niger seeds for oil milling
5294-1969	Grading for *KUSUM* seeds for oil milling
5614-1970	Tobacco seed oil
5637-1970	Watermelon seed oil
5638-1970	Acid oil (cotton seed and groundnut)
5686-1970	Code of practice for handling and storage of oilseeds
6220-1971	Grading for copra for table use and for oil milling
7375-1974	Salseed fat
7787-1975	Grading for *NEEM* kernels and depulped *NEEM* seeds for oil milling
7797-1975	Grading for soybeans for oil milling
7798-1975	Grading for sunflower seeds for oil milling
	Margarine